

WHAT IS CLAIMED IS:

[c01] A multilayer optical film, said film comprising at least two component films, at least one of said component films having an upper and lower surface, said upper surface comprising a series of optical structures and a plurality of raised spacing structures, said lower surface being essentially planar, said component films being joined so as to constitute a single film structure comprising at least one gap disposed between said component films.

[c02] A multilayer optical film according to claim 1 wherein said optical structures are convex structures.

[c03] A multilayer optical film according to claim 1 wherein said optical structures are concave structures.

[c04] A multilayer optical film according to claim 1 wherein said optical structures are prisms.

[c05] A multilayer optical film according to claim 1 wherein said raised spacing structures comprise at least one post-structure.

[c06] A multilayer optical film according to claim 1 wherein said raised spacing structures comprise at least one beam structure.

[c07] A multilayer optical film according to claim 1 wherein said raised spacing structures have a height relative to the optical structures said height being between about 0.1 and about 20 microns.

[c08] A multilayer optical film according to claim 7 wherein said raised spacing structures comprise at least one post-structure.

[c09] A multilayer optical film according to claim 1 wherein said component films have a thickness between about 0.006 and about 5 millimeters.

[c10] A multilayer optical film according to claim 1 wherein said gap comprises solid matter, fluid matter and combinations thereof.

[c11] A multilayer optical film according to claim 1 wherein the raised spacing structures have equal heights relative to the optical structures.

[c12] A multilayer optical film according to claim 1 wherein the raised spacing structures have unequal heights relative to the optical structures.

[c13] A multilayer optical film according to claim 1 wherein the raised spacing structures occupy an area, said area being defined as a percentage of a total area of the film surface upon which the raised spacing structures are disposed, said percentage being in a range between about 1 and about 50 percent.

[c14] A method for making a multilayer optical film, said film comprising at least two component films, at least one of said component films having an upper and lower surface, said upper surface comprising a series of optical structures and a plurality of raised spacing structures, said lower surface being essentially planar, said component films being joined so as to constitute a single film structure, said single film structure comprising at least one gap disposed between said component films, said method comprising making a plurality of component films using at least one microstructuring tool, and joining said component films to provide a multilayer optical film.

[c15] A method for making a multilayer optical film according to claim 14 wherein said joining comprises applying an adhesive or solvent to either the planar surface, the raised spacing structures, or both, stacking the component films to provide a stack of the component films, and applying pressure to the stack of component films to provide a multilayer optical film.

[c16] A method for making a multilayer optical film according to claim 14 wherein said joining comprises applying a uv-curable adhesive to either the planar surface, the raised spacing structures, or both, stacking the component films to provide a stack of the component films, and exposing the stack of component films to uv-radiation to provide a multilayer optical film.

[c17] A method for making a multilayer optical film according to claim 14 wherein said joining comprises stacking the component films to provide a stack of the

component films, and exposing the stack of component films to ultrasonic vibrations to provide a multilayer optical film.

[c18] A method for making a multilayer optical film according to claim 14 wherein said optical structures are convex structures.

[c19] A method for making multilayer optical film according to claim 14 wherein said optical structures are concave structures.

[c20] A method for making a multilayer optical film according to claim 14 wherein said optical structures are prisms.

[c21] A method for preparing a multilayer optical film according to claim 14 wherein said raised spacing structures comprise at least one post-structure.

[c22] A method for preparing a multilayer optical film according to claim 14 wherein said raised spacing structures comprise at least one beam- structure.

[c23] A method for preparing a multilayer optical film according to claim 14 wherein said raised spacing structures have a height relative to the optical structures said height being between about 0.1 and about 20 microns.

[c24] A method for preparing a multilayer optical film according to claim 14 wherein said raised spacing structures comprise at least one post-structure.

[c25] A method for preparing a multilayer optical film according to claim 14 wherein said component films have a thickness between about 0.05 and about 5 millimeters.

[c26] A method for preparing a multilayer optical film according to claim 14 wherein said gap comprises solid, fluid matter and combinations thereof.

[c27] A method for preparing a multilayer optical film according to claim 14 wherein the raised spacing structures have equal heights relative to the optical structures.

[c28] A method for preparing a multilayer optical film according to claim 14 wherein the raised spacing structures have unequal heights relative to the optical structures.